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IMMEDIATE INFERENCE REVISED

AN essential feature of the progress of science is its formulation of increasingly comprehensive laws. The partial truths of earlier times are taken up into the larger and more inclusive forms of later thought.

Recent logical theory has caught something of the spirit of this movement. With its criticism of traditional doctrine for the incompleteness of its representation of the structure of order systems and of the movement of thought about such systems it takes its place in the line of progress.

A result of this effort to enlarge the view is the statement of logical principles of greater generality than those previously formulated and the inclusion in discussion of conceptions not previously included. The syllogism, for example, has come to be regarded as a special case of transitive relations or of the compounding of relations transitive or intransitive; and the value of terms employed in discussion is allowed to range all the way from the null class to the entire universe of discourse.

The question of primary interest to the student of logic is: what effect does the extension of the field and the enlargement of the range of values have upon the traditional formulas? The validity of these may be, and at times has been, saved by simply accepting the limitations under which they operate. This is illustrated by the method of treatment of Immediate Inference. It has been observed from time to time that the formulas do not seem to be valid in every case. Inversion especially has been the object of criticism. Says Keynes: "Some logicians hold that from *All S is P* we may infer *Some not-S is not-P*. Take as an illustration, *All human actions are foreseen by the Deity.*"[1] If the formula is universally valid we may say, *Some things which are not human actions are not foreseen by the Deity.* But this inference is not convincing, and least so to those who would be most apt to accept the original assertion as true.

The validity of the formula is saved by Keynes's further statement: "We proceed on the assumption that each class represented by a simple term exists in the universe of discourse, while at the

[1] *Formal Logic*, 4th edition, p. 247.

same time it does not exhaust that universe. This assumption appears to have been made implicitly in the traditional treatment of logic."[2] The same thought is expressed by others.[3] Even Professor Lewis, while criticizing Euler's diagrams on the ground that they assume that no region of the diagram is null, in his own discussion of the subjects specifies that the classes have members.[4]

This, however, does not solve the problem of constructing formulas which will be valid without restriction. It leaves unanswered the question, What is true when one or more of the classes represented by the terms do *not* exist? What is true when a class *does* exhaust the universe? We can not be satisfied with ability to meet merely some of the possible situations. We must be ready to meet all. In the actual business of thinking, in the discourse of real life, it is not always true that terms cover a part and only a part of the universe. In Keynes's example the term "foreseen by the Deity" would be taken by many as exhausting the universe. It would be so by all Absolute Idealists. Here is a case where the predicate term covers everything, and thereby reduces its negative to zero. A similar case might arise with the subject term. When Royce argued that *All facts are known facts* he meant that the subject term should cover all thinkable cases. For in meeting the possible objection that there might be nothing in existence he maintained that if that were true the very fact that nothing existed would be known to the Absolute.

On the other hand, either term may become zero. We say *all cheaters will be expelled* without assuming that there are cheaters. Rather, the intent of the assertion is that there shall be none. Likewise when we say *No horses are unicorns* we do not assume that unicorns exist in the universe in which we are speaking. Here the predicate term has the zero value.

Thus it is evident that in actual discourse the value of subject and predicate terms in the traditional forms of proposition may be anything from "nothing" to "everything." The traditional doctrine in saving its validity by the restrictions suggested above is preserving its correctness at the cost of its usefulness.

A further objection to the above solution of the difficulty is that it overshoots its mark. Some of the traditional formulas are valid regardless of the value of the terms; for example, the full contrapositive. To put a restriction where it is not needed is faulty procedure.

Thus, neither the acceptance of the traditional formulas as valid

[2] *Ibid.*, p. 126.

[3] *Cf.* Hammond, A. L., this JOURNAL, Vol. XIX, p. 129.

[4] *Survey of Symbolic Logic*, pp. 192, *f.*

for all possible values of the terms, nor the restriction of them to cases where the terms and their negatives exist, gives the final interpretation of the doctrine.

The fundamental difficulty lies in the fact that in tracing the interrelations with which Immediate Inference is concerned, we are dealing at times with existent and at times with non-existent terms, and it is difficult to make assertions which hold simultaneously of both. Some of the traditional forms of proposition are applicable to terms involving either existent or non-existent members; others are not. In making inferences one is tempted to pass from cases of non-existence to cases of existence. It is, therefore, necessary to bear in mind the existential import of the several forms.

According to the view generally accepted in symbolic logic the universal, affirmative or negative, does not imply the existence of either subject or predicate. There are some limitations to the possibility of combining existent and non-existent terms. But for each term cases are discoverable corresponding to the values *zero, part of the universe, all the universe.* Particular propositions imply the existence of their subjects. Otherwise *some* would at times mean *none,* which would introduce confusion into our thinking. The particular affirmative involves the existence of its predicate term, though the particular negative does not. It must be borne in mind also that non-existence does not necessarily refer to empirical non-existence; it includes conceptual non-existence—that is, the possession of self-contradictory attributes.

The cases representing the various possible descriptions of the universe in which the traditional formal propositions are true may be algebraically calculated by the following method: If both subject and predicate terms and their negatives exist, the universe is described by the formula: $1 = AB + AB' + A'B + A'B'$. (*1* representing the universe, *A'* — *not-A, etc.*) The constant implication of *All A's are B* $(A < B)$ is that the *A's that are not B are zero* $(AB' = 0)$. Consequently, any universe in which the combination AB' does not appear is a field in which the assertion *All A's are B* might be made. The possible cases of such universes are discoverable by making all possible omissions of one or more terms in addition to the omission of AB', providing only that the universe has some content. The universe as a whole can not become zero.

If from the universe we omit the first three combinations given in the formula above we have: (1) $1 = A'B'$. This is the case in which both A and B are zero. Still it is true that $A < B$. Omitting the first two we have: (2) $1 = A'B + A'B'$. Here $A = 0$, but $B \neq 0$, $B \neq 1$. Omitting the first, second and fourth we have: (3) $1 = A'B$; that is $A = 0$, $B = 1$. In a similar manner we arrive at

descriptions of the universe for the remaining possible cases: thus,

(4) $1 = AB + A'B'$
(5) $1 = AB + A'B + A'B'$
(6) $1 = AB + A'B$
(7) $1 = AB$

The constant implication of the universal negative no A *is* B ($A \nless B$) is $AB = 0$. The possible cases may again be calculated by making all possible omissions of the remaining combinations of terms. They are:

(1) $1 = A'B'$
(2) $1 = A'B + A'B'$
(3) $1 = A'B$
(4) $1 = AB' + A'B'$
(5) $1 = AB' + A'B + A'B'$
(6) $1 = AB' + A'B$
(7) $1 = AB'$

The implication of the particular affirmative *some A's are B* ($sA < B$), is $AB \neq 0$. Making a similar calculation of the possible cases we have:

(1) $1 = AB + A'B'$
(2) $1 = AB + A'B + A'B'$
(3) $1 = AB + AB' + A'B'$
(4) $1 = AB + AB' + A'B$
(5) $1 = AB + AB' + A'B + A'B'$
(6) $1 = AB + A'B$
(7) $1 = AB + AB'$
(8) $1 = AB$

The implication of the particular negative, *some A's are not B* ($sA \nless B$), is $AB' \neq 0$. The several cases are:

(1) $1 = AB' + A'B'$
(2) $1 = AB' + A'B$
(3) $1 = AB' + A'B + A'B'$
(4) $1 = AB + AB' + A'B'$
(5) $1 = AB + AB' + A'B + A'B'$
(6) $1 = AB + AB' + A'B$
(7) $1 = AB + AB'$
(8) $1 = AB'$

Now the problem of Immediate Inference as traditionally presented is, Given the relation of A to B in the various possible quantities and qualities, what can be anticipated at once regarding the relation of A to B' (Obversion), of B to A (Conversion), of B to A' (Obverted Conversion), of B' to A (Partial Contraposition), of

B' to *A'* (Full Contraposition), of *A'* to *B* (Partial Inversion), and of *A'* to *B'* (Full Inversion)? Thus the various possible permutations of the several concepts (excluding the contradictories $A - A'$, $B - B'$, *etc.*) are considered.

In the case of the universal affirmative, traditional theory said, *All A's are B* implies that *No A's are not-B*, and this was taken to mean that the propositions *All A's are B* and *All A's are not-B* could not both be true at once. But from our present standpoint both can be true when the value of *A is zero*. In fact the condition on which *A is zero* is that both are true at once. The formula may still be stated in the same words, but it must be reinterpreted to mean that when *All A's are B*, the *A's that are not-B are zero*; and this formula holds for all values of *A* from *zero* to *everything*, inclusive. That is, there is no reason for setting a restriction to the effect that the formula holds only when all terms and their negatives exist.

The converse of *All A's are B* is given by the traditional doctrine as *Some B's are A*. But this holds when *A* is not *zero*. When *A* is *zero, there are no B's that are A*. That is, when *A* is *zero* the very contradictory of the other formula holds good. The true Converse of the universal affirmative then is: *Either some B's are A or no B's are A*, and the alternatives will be true depending upon whether *A* is not or is *zero*. Expressed with exactness, then, the converse of *All A's are B* is *Either some B's are A and A is not zero, or no B is A and A is zero*. Since the law of excluded middle holds good, this covers all possible cases of the value of *A*. It covers all cases of the universal affirmative.

The Obverted Converse meets with a like difficulty, and can be saved in a similar manner. It becomes: *Some B's are not not-A and A is not zero, or A is zero and All B's are not-A*.

The Partial Contrapositive may be kept in the traditional form provided it be interpreted to mean *There are no not-B's that are A*. This does not exclude the cases in which *not-B* is *zero* or *A* is *zero*.

The traditional formula for the Full Contrapositive holds for all values of the terms. No restrictions should be assumed.

The Inverses do not hold in the traditional form when there is no *not-B*. Hence they must be restated: *Some not-A's are not B and not-B is not zero, or not-B is zero and all not-A's are B* (Partial Inverse). *Some not-A's are not-B and not-B is not zero, or not-B is zero and no not-A's are not-B* (Full Inverse).

In the case of the universal negative the traditional formula holds for the Obverse. The Converse holds when we interpret it to mean *there is no B that is A*. The Obverted Converse holds. The Partial Contrapositive does not hold when *A* is *zero*. The formula may be restated: *No A's are B* implies *Some not-B's are A and A is not*

zero, or A is zero and no not-B is A. The full Contrapositive becomes: *Some not-B's are not not-A and A is not zero, or A is zero and all not-B's are A.* The Inverses do not hold when *B* is *zero,* and consequently must be restated: *Some not-A's are B and B is not zero, or B is zero and no not-A is B.* (Partial Inverse); and *Some not-A's are not not-B and B is not zero, or B is zero and all not-A's are not-B* (Full Inverse).

For the particular affirmative the Obverse and the Converses hold in the traditional form. Traditional doctrine says there are no contrapositives. But using the disjunctive forms we have: *Some not-B's are not A and not-A not-B is not zero or not-A not-B is zero and all not-B's are A* (Partial); *Some not-B's are not-A and not-A not-B is not zero, or not-A not-B is zero and no not-B is not-A* (Full). By means of the disjunctive form we have Inverses also: *Some not-A's are not B and not-A not-B is not zero or not-A not-B is zero and all not-A's are B* (Partial); and *Some not-A's are not-B and not-A not-B is not zero or not-A not-B is zero and no not-A is not-B* (Full).

In the case of the particular negative the Obverse holds in the traditional form. There is a Converse: *Some B's are not A and not-A that is B is not zero or the not-A that is B is zero and All B's are A.* There would have to be some sort of Converse in the light of the general principle that for every relation there is a converse relation, $(x\ R\ y) < (y\ \breve{R}\ x)$. Traditional theory in its statement that there is no Converse meant that there is none expressible in simple categorical form. There is also an Obverted Converse: *Some B's are not-A and the not-A's that are B are not zero, or the not-A's that are B are zero and no B's are not-A.* The Contrapositives hold good in the traditional form. And there are Inverses: (Partial), *Some not-A's are B and the not-A that is B is not zero, or the not-A that is B is zero and no not-A is B;* (Full), *Some not-A's are not-B and the not-A that is B is not zero, or the not-A that is B is zero and all not-A's are not-B.*

What is expressed by a number of these formulas is that as the value of certain terms or combinations of terms passes from existence to non-existence the inference passes from one propositional form to its contradictory. This gives the formal inference an ambiguity which is often practically unsatisfying, but which can not be ignored if the formula is to be universally valid without special assumptions. Such a formula calls attention to the fact that in drawing the inference one must be on guard against two very different situations. While this constitutes only a stage in the process of thinking it is often an important one. To assume that there is only one possibility, as the traditional doctrine seemed in some cases

to do, or to assume that there are no possibilities whatever, as it seemed to do in other cases, is erroneous. In giving an inference which seems merely formal we are keeping before us the whole field of possibilities, by no means an unimportant consideration.

The relation of these revised formulas to the traditional expressions may be indicated by a bit of symbolic treatment. The Converse of the universal affirmative is expressed by our fomula: $(A < B) < [(sB < A)(A \neq 0) + (A = 0)(B \not< A)]$. Now if we assume, as traditional doctrine is said to do, that A exists we must restrict both sides of this implication by the additional premise—$(A \neq 0)$. The problem is to determine the inference from $(A < B)$ $(A \neq 0)$. When this additional premise is introduced into the right hand side of the expression one of the alternatives becomes self-contradictory and therefore disappears. The other remains as it is: $(sB < A)(A \neq 0)$. But this reduces, in accordance with the principle of simplification, to $sB < A$. Our expresson is therefore: $(A < B)(A \neq 0) < (sB < A)$, the traditional form.

Similarly with the partial contrapositive of the universal negative. It is expressed by our formula: $(A \not< B) < (sB' < A)(A \neq 0)$ $+ (A = 0)(B' \not< A)$. Assuming that A exists the expression becomes: $(A \not< B)(A \neq 0) < (sB' < A)$, the traditional expression. In a similar manner any expression may be reduced to the traditional form by stating the hidden assumptions as explicit premises.

The revised table of Immediate Inferences may be represented symbolically thus:

$(A < B) < (A \not< B')$. [Obverse].
$(sB < A)(A \neq 0) + (A = 0)(B \not< A)$ [Converse].
$(sB \not< A')(A \neq 0) + (A = 0)(B < A')$ [Obverted Converse].
$(B' \not< A)$ [Partial Contrapositive].
$(B' < A')$ [Full Contrapositive].
$(sA' \not< B)(B' \neq 0) + (B' = 0)(A' < B)$ [Partial Inverse].
$(sA' < B')(B' \neq 0) + (B' = 0)(A' \not< B')$ [Full Inverse].

$(A \not< B) < (A < B')$ [Obverse].
$(B \not< A)$ [Converse].
$(B < A')$ [Obverted Converse].
$(sB' < A)(A \neq 0) + (A = 0)(B' \not< A)$ [Partial Contrapositive].
$(sA' < B)(B \neq 0) + (B = 0)(A' \not< B)$ [Partial Inverse].
$(sA' \not< B')(B \neq 0) + (B = 0)(A' < B')$ [Full Inverse].

$(sA < B) < (sA \not< B')$ [Obverse].
$(sB < A)$ [Converse].
$(sB \not< A')$ [Obverted Converse].

$(sB' \nless A)(A'B' \neq 0) + (A'B' = 0)(B' < A)$ [Partial Contrapositive].
$(sB' < A')(A'B' \neq 0) + (A'B' = 0)(B' \nless A')$ [Full Contrapositive].
$(sA' \nless B)(A'B' \neq 0) + (A'B' = 0)(A' < B)$ [Partial Inverse].
$(sA' < B')(A'B' \neq 0) + (A'B' = 0)(A' \nless B')$ [Full Inverse].
$(sA \nless B) < (sA < B')$ [Obverse].
$(sB \nless A)(A'B \neq 0) + (A'B = 0)(B < A)$ [Converse].
$(sB < A')(A'B \neq 0) + (A'B = 0)(B \nless A')$ [Obverted Converse].
$(sB' < A)$ [Partial Contrapositive].
$(sB' \nless A')$ [Full Contrapositive].
$(sA' < B)(A'B \neq 0) + (A'B = 0)(A' < B)$ [Partial Inverse].
$(sA' \nless B')(A'B \neq 0) + (A'B = 0)(A' < B')$ [Full Inverse].

The expression $(sA' < B)(A'B \neq 0)$, and some others of similar form are in a sense tautologous, but they are kept for the sake of uniformity of expression throughout the table.

It is therefore evident, I think, that it is possible to formulate a doctrine of Immediate Inference which does not presuppose that the terms involved in our assertions have some existence in the universe, nor that they cover only a part of that universe. We discover also that if we do not limit the forms of inference to the simple categorical it is possible to derive as many inferences from particular as from universal propositions. The formulas, it is true, are somewhat more complicated than those of traditional doctrine. But what they lose in simplicity they gain in universal validity.

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ACTIVITY AND OBJECTS IN DEWEY'S *HUMAN NATURE AND CONDUCT*

THE designation of an ethical theory as "naturalistic" would appear to mean one of two things. It might express the belief that everything with which Ethics deals—desires and preferences, moral judgments as well as the objects of such preferences and judgments, the good and the right—are all aspects of existences and processes which belong to "nature." But if this is what naturalistic Ethics means, and if it is thought to be a significant thing to say that Ethics is or should be naturalistic, then it at once becomes necessary to make clear what it is that one means by "nature." To make this clear obviously requires that one shall settle his accounts with all of the major theoretical and meta-

physical issues concerning the status, the scope, and the characteristics of nature. This is evidently not what is in Professor Dewey's mind when he defines his main problem as that of "seeing what objectivity in morals means on a naturalistic basis."[1] A naturalistic Ethics which is for him the prime desideratum is one in which the formulation and the solution of ethical problems shall be guided by the same logical methods and instruments which the scientific revolution of the seventeenth century brought to bear upon the knowledge of physical nature. It is a matter primarily of the scientific attitude and method, and not a matter of any ultimate interpretation of what nature is and means. A naturalistic Ethics, in this sense, will view all moral issues as in truth "engineering issues" which are to be solved only through a scientific, *i.e.*, an intelligent, analysis of the "knowable facts of life, man, and the world."[2]

Human Nature and Conduct is the outline—with an extraordinarily rich filling—of a naturalistic Ethics in this sense of the term. A careful reading of this book has left me with certain problems and doubts both as to the precise meaning of its central theses together with their logical implications, and also as to their adequacy. Any appreciation of the extraordinary stimulus and fertility of this survey of Ethics and Social Psychology is certainly not called for on any part. I propose to go to the root of my difficulty and my query and to state it as clearly as I can. What then are the "knowable facts of life, man, and the world" which offer themselves for ethical analysis?

Throughout the book Professor Dewey appears to me to have woven together two quite different themes, two diverse accounts of the relation between the activities of individuals—habits, impulses, and deliberations—and the objective situations which constitute the environment and the setting of these human activities. On the one hand, it is repeatedly urged that the activities of individual experience depend *entirely* for their meaning, their content, and their specific character upon some objective fact or situation or consequence. In themselves, these "activities" are sheer potentialities and abstractions. (*a*) Habits are in no wise merely ways of acting which belong to individual organisms and minds. They "incorporate objective forces." "Honesty, chastity, malice, peevishness, courage, triviality, industry, irresponsibility are not private possessions of a person. They are working adaptations of personal capacities with environing forces. All virtues and vices are habits which incorporate objective forces."[3] The self is never isolated

[1] *Human Nature and Conduct*, p. 52.
[2] P. 11.
[3] P. 16.

either from nature or from other selves. "We live mentally and physically only *in and* because of our environment."[4] The falacies and perversions of all transcendental Ethics arise from the failure to observe this solid attachment of selves and of desires, of motives and habits, to empirical objects. (*b*) The objective situations, factors and consequences which selves and habits "incorporate" are the source of all the specific *meanings* which activities possess. The "only *components of the meaning* of the act" are its objective consequences, the elements and aspects of the environment upon which the act impinges. There are no "inherent qualities" of psychic elements "which might be directly read off by introspection."[5] Meanings are never internal and psychic; they are objective and factual. Activity as such is "fluid," abstract and wholly potential. It gets all of its precision, content, and definition through "contact with objects." "These experiences of contact with objects and their qualities give meaning, character, to an otherwise fluid, unconscious activity. We find out what seeing means by the objects which are seen. They constitute the significance of visual activity which would otherwise remain a blank. "'Pure' activity is for consciousness pure emptiness."[6] (*c*) This dependence of all conscious and inherent activities upon the objective environment, upon "static termini"[7] lies at the basis of Professor Dewey's criticism of the traditional concept of instinct. There are no native instinctive activities which provide for or in any way contain their own meaning and nature. "The *meaning* of native activities is not native; it is acquired."[8] And it is acquired from and molded by the objective social medium and environment. It is "social conditions which have educated original activities into definite and significant dispositions."[9] These social conditions provide the objective stimuli which give definite content and meaning to the plastic and fluid potentialities of all that is original. The so-called instincts of acquisition and sex are dependent for everything which makes them the specific things they are upon the nature of the stimulus which elicits them, and the object to which they are attached. Instinctive activities and proclivities are the raw material, the potential stuff of any and every human interest and institution. In themselves they contain no explanation of the specific nature of any one of these. For such an explanation we must look to the "social patterns woven

[4] P. 327.
[5] P. 151.
[6] P. 191.
[7] P. 191.
[8] P. 90.
[9] P. 91.

out of the stuff of instinctive activities."[10] It is these concrete and specific social patterns which provide instinctive activities both with a definite stimulus and a definite object. Such objects are the source of all the meaning which these activities acquire. (*d*) Lastly, that reasonableness of activity, of conduct, which consists in the "order, perspective, proportion which is achieved, during deliberation, out of a diversity of earlier incompatible preferences," this internal harmony of conduct and of activity "implies, of course, the *presence of a comprehensive object,* one which coördinates, organizes, and functions each factor of the situation which gave rise to conflict, suspense, and deliberation."[11] Here are indicated, then, various ways in which activity and conduct are dependent, both for their meaning and for their specific character, upon *objective* factors. In these passages there seems to be clearly implied an ethical realism in which meaning and value, just because they originate from objective factors, must be something discovered, and must be discovered as being located not in activities, but in objects, whether these objects be "social patterns," consequences of conduct, or what not.

But this realism, this emphasis upon objects which endow activities—in themselves wholly "fluid" and potential—with all of the meaning which they ever acquire, would seem to veer off in a direction quite different from that required by the logic of a humanistic and pragmatic Ethics. And, indeed, this motive in *Human Nature and Conduct* is offset by another motive according to which objects are but the potentialities of and the clews to activity, deriving *their* content and *their* meaning from the activities and habits of the organism. For, the deliberation and thinking which so far have appeared really to discover something objective, and to depend upon what objects reveal, are now said to disclose a meaning which orginates in the arrested momentum of activities themselves. The objects which, in recollection and in deliberation, appear to be real objects, actually "represent habits turned inside out."[12] To be sure, these "objects" are said to exhibit "both the onward tendency of habit and the objective conditions which have been incorporated within it."[13] But repeatedly the emphasis is placed upon the "momentum," the "onward tendency," "the satisfaction of the forces of human nature," "the push and drive of life." Sensations and perceptions, objects discriminated and "ends" deliberated upon, derive *their* meaning from the energy of impulses

[10] P. 110.
[11] P. 194–5, italics mine.
[12] P. 182.
[13] P. 182.

and activities meeting with obstruction and shock, and again surging forward redirected and reconstructed. These objects and qualities get their significance from the activities which they block or release. "Sensations in immediate consciousness are elements of action dislocated through the shock of interruption. They never, however, completely monopolize the scene; for there is a body of residual undisturbed habits which is reflected in remembered and perceived objects having a meaning. Thus out of shock and puzzlement there gradually emerges a figured framework of objects, past, present, future. These shade off variously into a vast penumbra of vague, unfigured things, a setting which is taken for granted and not at all explicitly presented. The complexity of the figured scene in its scope and refinement of contents depends wholly upon prior habits and their organization."[14] It is not now activities getting their meaning through the "discovery of objects,"[15] but objects getting their meanings through the activities which they obstruct or release, into which they fit or with which they jar. "Complacency and annoyance follow hard at the heels of any object presented in image as they do upon its sensuous experience. Some objects when thought of are congruent to our existing state of activity. They fit in, they are welcome. They agree, or are agreeable, not as matter of calculation, but as matter of experienced fact. Other objects rasp; they cut across activity; they are tiresome, hateful, unwelcome. They *disagree with the existing trend of activity,* that is, they are disagreeable, and in no other way than as a bore who prolongs his visit, a dun we can't pay, or a pestiferous mosquito who goes on buzzing."[16] Objects serve only to aid us in "perceiving the tendency of our inchoate dawning activities."[17]

Now it is one thing to say that activities get their definition and their meaning from objects and from what they discover in objects; it is another thing to say that objects get their meaning from activities, that they are incidents or phases in the career of activities. The first statement is realistic; the second is humanistic and pragmatic. I think I can understand something of a theory of value which builds upon either one of these premises. To weave them together without (so far as I can find) any clear recognition of the problematic character of the combination suggests hunting with the hounds and running with the hares. But if we are left with an unsolved contradiction on our hands, we are at least given a suggestion as to the source of the difficulty. For, the emphasis

[14] P. 182.
[15] P. 212.
[16] P. 200–1.
[17] P. 207.

upon the significance of activity rather than of objects, as the source of meaning and value, occurs in connection with the rejection of the view that in deliberation and reflection present activities are or should be subordinated to future ends and enjoyments. Goals and ends remote from present activities do not absorb and concentrate in themselves the meaning of present activities. "They are ways of defining and deepening the meaning of activity. Having an end or aim is thus a characteristic of *present* activity. It is the means by which an activity becomes adapted when otherwise it would be blind and disorderly, or by which it gets meaning when otherwise it would be mechanical. In a strict sense an end-in-view is a *means* in present action; present action is not a means to remote end. Men do not shoot because targets exist, but they set up targets in order that throwing and shooting may be more effective and significant."[18] This insistence upon present significance, this protest against the perpetual postponement of the present to the future is far-reaching and sound. But because present activity and present experience can not safely be subordinated to meanings and achievements lying wholly in the future, it does not follow that the significance of present activities lies wholly within themselves, and is self-contained, something definable apart from the objects and values to which present activity is attached and directed.

There is a possible ambiguity in urging that "ends arise and function within activity, and that they are not, as current theories too often imply, *things lying beyond activity* at which the latter is directed."[19] The "things lying beyond activity" may refer to either of two very different things. They may mean some end or goal eventually to be attained, and which is "outside" present activity because it is not now possessed in present experience and appreciation. Or, they may refer to some object or value which is "outside activity" only in the sense that present conscious activity discovers in something not itself a meaning and value upon which it is focussed and directed, something objective which is at the same time discovered by an activity and is also independent of its discovery and its appreciation. A sonnet, together with its meaning and its beauty, does exist "outside activity" in the second sense, but not in the first. The "enrichment of content," the increase in the "intrinsic significance of living," for the sake of which "study and planning" exist,[20] is the fruit of discovery of the meaning and value of objects, or reality. It is no projection into the void of the meanings which belong primarily only to

[18] P. 226.

[19] P. 223, italics mine.

[20] P. 267.

the activity itself. At least, unless this is so, I can see no point to the repeated emphasis upon the dependence of activities, for their definition and their significance, upon objects, upon social structures, upon all that our conscious activities discover within the world in which they happen to find themselves. It is such a discovery of what can only, in its own proper sense, be thought of as "outside activity" that is capable of yielding that "peace in action" which is the "contribution of the ideal to conduce." [21]

I think that attentive readers of *Human Nature and Conduct* can not fail to be struck by the explicit recognition of the partial and even subordinate rôle assigned to the pragmatic and intrumental concept of control. "The amount of control which will come into existence in the future is not within our control." [22] What else can this mean than that activities are surrounded and permeated by objective situations which have to be accepted and *contemplated*. "There is a point in *every* intelligent activity where effort ceases; where thought and doing fall back upon a course of events which effort and reflection can not touch." [23] What does this outlying "enveloping whole" contain and comprise? *It* is certainly "outside activity," yet does it not offer to all of our experience and our activity objects and structures, all of the values which it is the business of intelligence and reason—and feeling—to discover and to apprehend? But to say this, which Professor Dewey does come perilously near to saying, seems to me to embark upon an enterprise which might in the end call for a very considerable revision of that "naturalism" which regards consciousness as a "natural" function, serving only to straighten out the tangles and confusions of conflicting impulses and habits, and which regards values solely as dependent upon the release and the unified free expansion of these natural activities of living organisms.

There are two distinct human interests which are served by the study of Ethics. Only confusion can result from a failure clearly to distinguish them, at least as a preliminary step in the further consideration of their mutual relations. The study of Ethics may grow out of a reflective interest in determining what it is that I ought next to do, confronted as I am by a specific situation and a specific problem. Reflection and analysis, knowledge and science, exist here for the sake of activity, in order that present activity may be intelligent, confident, significant, and effective. I can see good reasons for speaking of this type of question as involving nothing but an "engineering issue." Professor Dewey is

[21] P. 264.
[22] P. 267.
[23] P. 264.

undoubtedly right in urging that very much of the classical ethical tradition is irrelevant to this enterprise. But there is another distinct interest out of which Ethics arises. It lies in the attempt, not to determine specifically what next to do, but to offer some adequate interpretation of the pervasive characteristic of the human situation as a whole, the situation in which men desire, strive, and seek after things which they believe to be fraught with value. Any hypothesis or theory concerning the nature and the meaning of the processes in which human activities are directed upon objects and values is something quite different from a specific plan of action. It is theoretical and not immediately practical. It will yield knowledge and not "control." In supposing that traditional Ethics is vitiated in so far as it set up "fixed" and static ends and universal principles, there is always the possibility that the question and interest of traditional Ethics which has been thus answered is *not* that of formulating a plan of action, but has been instead the interest in understanding and in interpreting the processes and their environment in which plans of action arise. In this latter case something of a "fixed" and "universal" import is inevitable, though the particular nature of the answer yielded may be as false as you please. And when it comes to the "enhancement of the meaning of present activity," it is a fair question whether there is not more to be hoped for from a theoretical survey and contemplation of the total setting of our active processes—so far as we can win such—that there is from the specific knowledge of the "next thing to be done." After all, with whatever meaning our present activities may be endowed and enhanced, *that* meaning is something to be discovered, apprehended, and enjoyed; that meaning is in no sense a plan of action. It is a fixed and definitive constituent of the total situation present to our conscious awareness. It is an objective value.

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BOOK REVIEWS

Problems of Modern Science. A series of Lectures delivered at King's College (University of London), edited by ARTHUR DENDY. New York: Henry Holt and Co. 1922. Pp. 237.

Le Système des Sciences: Le Vrai, L'Intelligible, et le Réel. EDMOND GOBLOT. Paris: Armand Colin. 1922. Pp. 259.

The Unity of Science. JOHAN HJORT. New York: Alfred A. Knopf, Inc. 1922. Pp. 176.

These three books on science are in a sense popular expositions; but they are not dilutions for the unreflective. In each the prob-

lems of science are strongly in evidence. Their themes illustrate the close connection of science and philosophy. The writers of the first volume, though they abstain mostly from metaphysics, recognize it as a domain of legitimate scientific interest. The second is largely a plea for the limitation of knowledge to the confines of science, and consequently is distinctly philosophical. In the third the theme (the way to scientific monism) is frankly metaphysical, albeit its subject-matter is that of natural science.

In the lectures on the "Problems of Modern Science" the present situation, both as to knowledge and to promising lines of inquiry, is sketched for us by recognized masters in the various departments of science. From Professor J. W. Nicholson we learn " that of all the modern developments of mathematics which are now taking place there is none more fertile and more rapidly expanding than the so-called ' Theory of Probability.' In physics we have the whole kinetic theory of gases and the newer Quantum Theory built, in the first instance, upon this as a secure foundation." It is this theory, also, that has brought new light into the field of radiational phenomena, that is, the free activities of individual units below the structural level of matter. " According to the [Quantum] theory radiation is not being emitted continuously in appropriate circumstances from an atom, but in definite jumps of prescribed amounts, these amounts involving a new universal constant of nature, denoted usually by h, to which all are proportional. . . . This emission is a transference of energy from matter—the atom—to the æther, and not directly from matter to matter. . . . It is this transference of energy between matter and æther which introduces something new, and the Quantum Theory in its successful form states that among all the steady states of an atom which ordinary dynamics allows only a certain number are in fact possible, during which the atom emits no energy to the æther, and these are the states which it takes up. If energy is emitted, it must be of an amount which enables the atom, after the operation of emission, to fall into one of the other steady states."

In other directions also, such as the weakness of mere (Baconian) induction and the reasonableness of the Einstein Theory, the author illustrates the extensive services that mathematical science, or Quantitative Science, as he terms it, has rendered to the natural sciences. The logical query why quantitative principles, constants, *etc.*, determined *a priori*, should prove thus useful in interpreting actual situations in nature leads over the border into metaphysics, whither Professor Nicholson does not follow it. Nevertheless, he is evidently confident that mathematics will continue to be a kind of trustworthy theodolite in the wide field of nature.

In astronomy Professor J. B. Dale's article occupies itself chiefly with the census and geography of the sideral heavens, a field in which he considers that the foremost interest of his science now lies. The total number of stars is estimated from the best photographs at something like three thousand millions. As to their distribution in space "the working hypothesis which is generally accepted at the present time is that the shape is something like a bun or lens, our sun being near the centre, and that encircling it, perhaps in spiral fashion, are the star clouds that constitute the Milky Way." Generalization from the seeming, or "proper," motions of the stars leads astronomers to conclude "that the stars do not form a single system, but are to be regarded as forming two distinct systems," or "drifts," with still "others which stand apart and form distinctive systems by themselves."

As to the natural history or development of the stars we are told that the stellar spectra have been arranged upon a scale of six different colors, characteristic lines, and temperatures, the bluish-white stars being "the brightest, hottest, and most massive," and the red stars the least so. The white stars are all of high magnitude, while the orange and red stars are scattered through about sixteen degrees of magnitude. It is inferred that these internal differences mark different stages of development or condensation. The idea of development is offered again in explanation of the spiral nebulae. Concerning these the problem is "whether they are a part of our own sidereal system or are to be regarded as island universes, systems co-equal with our own, situated far beyond its limits." Since nearly all of them "appear to be moving relative to our system with very great velocities," and "with very few exceptions they appear to be receding from our system," and, "thirdly, in some of them temporary stars have appeared" with characteristics which indicate "that the spirals are a hundred times as distant as the Milky Way," a reasonable quantitative estimate of any one of these nebulae warrants the conclusion "that there is sufficient matter to construct many thousands, even millions, of stars equal in mass to our sun. It seems, therefore, not at all improbable that these nebulae are the stuff of which universes of stars are made."

Professor Arthur Dendy's account of biology is characterized by a proposed new, and more logical, classification of that group of sciences. In his scheme—which, however, is not offered "as it stands" as "suitable for an actual curriculum in any existing university"—the division between zoology and botany is relegated to a secondary position, and stress is laid upon differences of method rather than of subject-matter. The logical division, as he views it, is into: (*a*) Descriptive and Systematic, (*b*) Experimental, and (*c*)

Philosophical Biology. Naturally cross divisions result, morphology, embryology, and psychology each appearing in two of the divisions. A striking feature of the scheme is the open appropriation of part of the field of philosophy, metaphysics, as well as psychology, being placed among the daughter biological sciences. Points of special progress and vigorous speculation mentioned by Professor Dendy are the structure of the cell—"complex beyond our powers of analysis" and affected by mysterious "Mendelian factors"—the steady filling up by the paleontologist of the gaps in the record of organic evolution, the working out of the theory of "adaptive radiation" for explanation of the geographical distribution of organisms, the effects of drugs upon the type, the determination of the golden mean between, say, Loeb and Driesch, and of the determinants of new organic types, and, finally, "the much disputed problem of the origin of living things."

Other topics treated in the volume are: Organic Chemistry, by O. Smiles; Physics, by O. W. Richardson; Physiology, by W. D. Halliburton; Botany, by R. R. Gates; and Anatomy, by E. Barclay-Smith.

In *Le Système des Sciences* Professor Goblot, of the University of Lyons, discards the term "classification of sciences," used by him in a former work, on the ground that there can be no classification where there are no classes, a class being "an ideal group of objects *indefinite in number,* which have common characters." In the sciences "there are no genera and species, but an order of necessary subordination." It is this order that the author examines, seeking the distinctive characters of the various sciences, "marking limits and pointing out the relations they sustain among themselves, particularly their relations of subordination and dependence." He avows a radical rationalism "in the pure French tradition."

Thought, we are told, takes on the character of science only when it has universal value, and when the intellect is isolated and "constrained to operate as if it were actually independent of the remainder of our nature." In science proper no place remains for either doubt or ambiguity. It is constituted "of *clear* ideas in the Cartesian sense of the word," and of ideas which are also "*distinct,* the mind knowing exactly what it is thinking of and what it affirms." Especially is science the work of the "critical temper," through which results essentially scientific may be gained, albeit the Cartesian test is not yet fully met. "A notion is scientific, even when it is still obscure and vague, provided the mind takes account of its imperfection and is able to distinguish between what it knows and what it does not know." Even doubts may remain, "provided the mind apprehends these doubts, takes care to formulate them, evaluates and,

when it is possible, measures the degrees of approximation, of probability, and of appearance of truth. So science contains at the same time truths and hypotheses, much more hypotheses than truths, and the most adventurous have a value for it, provided it does not confound them with established truths."

Naturally the author identifies knowledge and science. Since science "utilizes all means of knowing," refraining carefully from spurning any "because it is not included in the traditional ways of the laboratories, or because the logicians may have emitted to catalogue it," it follows that "there is no knowledge which may not be scientific after it has been subjected to criticism. There can be no truth, nor even probability and appearance of truth, outside of science." Apart from it "there is only ignorance." So "there is no philosophy outside of science. There are philosophical sciences; there are some minds more philosophical than others; there are some more or less philosophical ways of treating the sciences. But there is no philosophical knowledge distinct from scientific knowledge, nor any object of philosophy distinct from the objects of the sciences"—a sweeping indictment of philosophy in general, and in particular of the philosophy of Bergson, the central position of which is discussed.

Professor Goblot himself exemplifies one of the "philosophical ways of treating the sciences." He is concerned, as his sub-title avows, with "the true, the intelligible, and the real." Of these the second proves to be the word of power, mathematics being its most complete revelation. When a generalization from experience (*i.e.*, the "real") has stood the test of criticism, it is true in the empirical sense; but such trueness is only provisional. The induction is not fully true until it becomes *intelligible,* that is, coercively established by *deduction.* At the first stage it is a natural law, and expresses "a constant order" of facts; but that does not "satisfy the mind of the scientist. He wishes to know why that order is constant; . . . he wishes to perceive its necessity; . . . he wishes to find intelligible relations," that is, the more inclusive law or system which involves and requires the particular law, as, for example, Newtonian gravitation requires the laws of falling bodies and planetary motion of Galileo and Kepler. "True science is a second knowledge, which envelops the first, and surpasses it: it is the intelligible reason of the fact. . . . In a word science takes leave of experience, that is to say, the real, and tends constantly towards the *intelligible.*"

This "intelligible," the discovery of which is the goal of science, appears to be Platonic reality. Professor Goblot does, indeed, pronounce the identification of the real and the coercively true, or intelligible, "the great paradox of Platonic realism"; but this appears

to be because (pragmatically) he defines the real as "ce qui est actuellement donné, ou ce qui peut être donné, dans une expérience." Naturally, "il en resulte que le vrai et le réel sont choses fort différentes." "L'opposition entre le sensible, 'qui devient toujours et n'est jamais,' et l'intelligible, 'qui est toujours et ne devient jamais,' est si radicale que ni le mot *réalité* ni le mot *existence* ne peuvent se dire dans le même sens de l'un et de l'autre. . . . Platon voulait dire qu'une vérité est antérieure au cas singulier dans lequel elle se vérifié. . . . Il voulait dire encore que la vérité est antérieure à l'acte de l'esprit qui la connait, qu'elle lui survit, qu'elle en est indépendante, et que, pendant que l'esprit la considère, elle le dépasse infiniment. L'existence des Idées, c'est leur indépendance d'une part à l'égard des choses (res) qui en offrent une représentation sensible et singulière, et, d'autre part, à l'égard de l'esprit qui les pense en un acte individuel et passager. En ce sens, ne pouvons nous pas dire, nous aussi, que le vrai existe, et qu'il existe plus que le réel, pourvu que nous n'entendions par là ni une existence empirique, ni une existence substantielle?

"L'ordre nécessaire des choses, l'ordre en dehors duquel aucune chose ne peut être donnée comme réelle, l'ordre qui commande au réel avant qu'il soit, en vertu duquel tout réel commence, dure, et se termine, l'ordre dont le réel est une expression toujours incomplète, puisque singulière et transitoire, n'est pas le *réel*, mais le *possible*. Il n'est pas une *substance:* l'existence substantielle comme l'existence empirique du possible est contradictoire. Est-ce à dire qu'il n'*existe* absolument pas? Il enveloppe et dépasse infiniment le réel. Il est le *vrai*."

Why Professor Goblot should deny that his "intelligible" is a substance—that is, a persistent reality with distinctive properties—does not appear. How can anything lacking these two characters "commande au réel avant qu'il soit"? It follows that all speculation that uses images drawn from the real (*i.e.* experience) is unscientific, and not directed toward the true. This is the great fault of most metaphysics; it is tainted with empiricism!

The author gives a good and suggestive account of deduction as a method of science, finding it a combination of mental experimentation and intuition, and by no means confined to the formal syllogism. As a plea for the rights of constructive thought his argument is excellent, but his criticism of received views on the subject is not convincing. Does any logician of standing regard deduction as merely the development of the meaning of a *single* proposition, that is, as a purely analytic process? So of his implied claim to the making of an important discovery, namely, the function of insight in

deduction. Surely Descartes' stress upon intuition was sufficiently emphatic.

Although as a Platonist Professor Goblot is naturally thoroughly deterministic, yet he recognizes generously the rights of free *action.* It is by action that the intellect "returns to the real, the concrete, regular, located, and dated facts; it returns to the facts enriched by the intelligible, which is at once an enlightenment and a power." Yet science, although it includes ethics, by no means provides us with "all the lights of which we have need for the rational conduct of life. We are, we shall always be, obliged in many cases to decide without knowing." In such cases "we must resolve and try to make wise *decisions.*" But it should never be forgotten that "such decisions are not forms of knowledge, and have no right, however reasonable[!] they may be, to convert themselves into judgments."

Professor Hjort, of the University of Christiania, is concerned with a problem in metaphysics in the original sense, that is, the borderland of physical science. His problem—the path to unitary coherence among the sciences—grows out of the present division of the scientific domain into the two great fields of the organic and the inorganic. This is not an absolute division, for the elements are the same in the two fields. For most biologists the forces are the same, also. So, in Kantian terms, the question is one of form rather than matter—of behavior discovered, kinds of law established, and of methodological principles. It is, "the problem as to how the teleological view can exist simultaneously with a monistic view of nature, that is to say, with a view which is the same for living and dead objects alike." The problem is due to the obvious fact that purposiveness, which "innumerable biologists" have found to be integral to biological interpretations, appears to be absent from the domain of the inorganic. Such a fundamental difference of aspect involves, of course, corresponding differences of methods and conclusions.

Most vitalists apparently regard this familiar division as incurable. They stress the distinctiveness of the organic. The mechanistic school, on the other hand, seeks to abolish the distinction by reducing all organic phenomena to movements of material units stript of even the thinnest aspect of purpose. For them "the teleological is a product of the accidental." This opposition of theory the author traces through the current discussions of adaptation (Is it due to purely internal causes, as claimed by radical natural selectionists, or to these in interaction with the environment?), of the causes of variations, of the differences between mutations and fluctuations, of acquired characteristics, *etc.;* and finds underlying all the differences of opinion one "philosophical problem, how to com-

bine the two ideas: that of function and that of chemical processes" —virtually a technical form of the old antithesis of the teleological and mechanical.

In this persistent debate Professor Hjort is not a partisan. He seeks a larger view, which may recognize adequately the valuable ideas on both sides. On the one hand, he has no favor for vague notions. Biology having "become an exact science . . . cannot admit the existence of processes of a specifically 'vital' nature, nor of any of the 'factors' invented by neo-vitalism": so, also, as to "the vague notion called in biological literature chance." It should "be replaced by definite scientific conceptions." On the other hand, he is quite sure that teleology can not be expelled from the field of life. The radical mechanist is quite mistaken if he supposes that his favorite ideas effect that expulsion; for "it is obvious . . . that there can be nothing which more fully implies the teleological view than the concept of a *machine.*"

For our author the unification of science is not to be effected by the denial of living matter's most distinctive character, but by opening our minds to the truth which a more intimate acquaintance with nature is increasingly suggesting to us, namely, that the teleological character, at least in elementary form, belongs also to inanimate and miscalled inorganic matter. The usual assumption "that living organization is something far more complicated than the structure established by the physics or chemistry" he thinks is not supported by the new physics, and he quotes approvingly the statement of Sir E. Rutherford that "the more the subject is examined the more complex must we suppose the constitution of matter in order to explain the remarkable effects observed," to which he makes the pregnant addition,—"*The complexity of an object depends not on itself, but of* [on] *the degree to which it is investigated, and the questions we ourselves raise in investigating it*"—a conclusion which Bergson would doubtless be quick to endorse. Again, the author holds that when really definitive (*i.e.* scientific) results are secured in physics, it is through the constructive use of the idea of an "organization in the system"—a method which physics acquired from biology. Indeed, "the word organization is a biological expression for the same thing as is known to physics and chemistry as a system." As for the greater use of mathematics in physics, this is due to the fact that heretofore physics has been occupied mostly with abstractions, for the relational development of which mathematics is peculiarly fitted. But "the slightest complication of the problem renders mathematics a wasteful tool in the service of research." Moreover, "physics also makes use, and that in the greatest measure, of the more complex systems, where mathematical treat-

ment of their elements would be an impossibility"; for example, in thermo-dynamics.

"A comparative view of the methods of biology and physics thus leads us to the conclusion that the two sciences make up *a connected whole,* and that each can therefore learn a great deal from the other." The usual sharp division between the fields is due to our partial knowledge of each. The opposition between purpose and mechanism is quite uncalled for, both being embraced by the larger fact of *organization*—a term which the author thinks is becoming the word of power in each field. Organization is much more fundamental than mechanism, which is simply a useful term standing for " a part of a whole or an abstraction of one side or aspect of a whole," whereas organization is reality itself—never an object of investigation, but "the fertile source for experience, to which all investigations must return again and again. It consists of an infinite number of mechanisms, that is to say, an infinite number of simplified systems may be established for research arising out of our ideas of organization itself." Life is evidently an advanced form of organization, but no real individual is unorganized.

In a cautious way Professor Hjort, too, is a partisan of the powers and rights of mind as a constructive agent in the world. He is more in sympathy with the hypothesis-making and testing Galileo than with the distrustful, merely generalizing Bacon. Though he finds much of value in Hume as a critic of experience, he is evidently out of sympathy with Locke and the empiricists in general, most of his philosophical appeals being made to Kant. The creative powers of mind in biology, as illustrated, say, by Cuvier, he holds to be signally vindicated, and he sees a new vindication of them appearing in the progress of the new physics. With all its unquestioned need of critical guidance, constructive thought is nevertheless the great discoverer.

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The Trend of History. WILLIAM KAY WALLACE. New York: The Macmillan Company. 1922. xix + 372 pp.

In spite of its pretentious title, which would seem to suggest a philosophy of human history, this is a book about the rise, development, and decline of the idea of the National State. This idea of a National State, the author maintains, is the characteristic political ideal of the middle class: it was first formulated by the philosophers of the eighteenth century, was developed during the French Revolution, and came into its own after 1830; it dominated political thinking from 1830 to 1870; but in its turn it had to give way before inter-

nationalism and imperialism. The story is carried down to about 1890, when, according to the author, the old-fashioned National State had almost been supplanted; it "had become the shell, it was no longer the kernel, of social life."

Unfortunately, the book is not well done. One can but feel that in its 347 pages the author has told all, and indeed considerably more than all, that he knows about the history of the century. Though in his preface (p. ix) he says that religion, politics, and economics are the three forces directing social life, he has nothing at all to say about religion, and concerning the economic history of the century he is deplorably vague. What he does is to endeavor to establish the mentality of the different classes of people with whom he is dealing, especially the "middle class," and to show how political history resulted from these ways of thinking. In so far as he makes any philosophic attempt to explain "the trend of history" at all, he is an Hegelian who can see in history only attempts to realize a few general ideas. But even in doing this, he is sadly haphazard. He apparently has reached the conclusion (perhaps during the war) that nationalism is over, or at least ought to be, and has written down what historical facts he can remember which point in that direction. For example, disproportionate space is devoted to the Eastern Question; the obvious reason for this is that he had recently been reading parts of Buckle's *Life of Disraeli*—apparently his only source for the subject! The conclusions set forth are frequently such as to make one gasp and rub one's eyes. Thus on p. 248 we read that "the great economic expansion of the last quarter of the nineteenth century, and the cultural progress which was realized, were in a large measure the result of the rise of the proletariat." When a little later, Disraeli is pictured as a proletarian (p. 266), we can only wonder whether this is an attempt to write serious history, or merely to flabbergast the reader. The facts presented do not justify the statements about the passing of the National State, while even a slight knowledge of the nationalistic passions prevailing in the world to-day would make their accuracy seem still more problematic.

The great trouble with the book is its marked immaturity. The author obviously has had but little systematic training in history, and seems to prefer speculation to research; but if not a historian, perhaps he is a sociologist. An important interpretation of the history of the nineteenth century can not be written without much more serious reflection than Mr. Wallace has given to his subject, and the need for so superficial and unimportant an interpretation as this is hard to see. It is a pity that the book appeared as it did,

for the author is not without ideas and even now makes some very just remarks; if only he had spent as many years on his book as he apparently did months, he might have produced something worth while.

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Proceedings of the Aristotelian Society, 1921–1922. New Series, Vol. XXII. London: Williams and Norgate. 1922. Pp. 242.

The Aristotelian Society papers during 1921–1922 were marked by variety of subject rather than by any notable single contribution. Papers read at the joint meetings with other societies and at several discussion meetings are not included here, though the titles of some of the omissions make one regret that they are not here in place of some of the included papers.

The Presidential Address by F. C. S. Schiller on "Novelty" seems to hit chiefly an imaginery rationalist philosopher of Mr. Schiller's own making, and even he could probably make his escape through the interstices in Mr. Schiller's terminology. Mr. Schiller seems committed to the belief that since perfect formal precision is impossible, therefore vagueness is a virtue.

A paper on Plato's fourth or lowest sort of knowledge, by H. J. Paton, defends the view that this is a stage of primary intuition where the question of truth and error has not been raised. This conclusion seems rather unhappily expressed, when put thus in the language of other times and other controversies. But the paper is well worth reading.

A paper by S. N. Dasgupta, entitled "The Logic of the Vedanta," deals with the meaning of those Hindu statements which declare the every-day world to be an illusion. He concludes that they mean an objective vagueness and ambiguity, so that both *is* and *is-not* are false of this sort of thing. The world of every-day can not be logically thought out. The author naturally here draws a parallelism with F. H. Bradley, and shows himself well acquainted with Western thought. The notion of qualitative vagueness is one which is important and worthy of more study than it has received from logicians. But one may wonder whether existential vagueness does not really reduce to a sort of being which is unfortunately too evident to be ignored, yet is in some way ethically or emotionally unsatisfactory.

A paper by R. F. A. Hoernlé expresses some doubts concerning the distinction of knowledge by acquaintance and knowledge about, and proposes a distinction of first-hand and inferred or hearsay

knowledge, as being of greater significance. It is regrettable that he limited himself to a mere suggestion. The distinction was left by William James in his usual suggestive free and easy indefiniteness. In Bertrand Russell it reappears as a logical theory for dealing with descriptive names, with the suggestion, never worked out, that it extends to propositions generally. There are two distinct problems involved. The one is that concerning how we can describe in meaningful terms the non-existent. The other is the problem of what constitutes first-hand knowledge. Russell assumes a solution to the second and grapples with the first. His assumed solution is that first-hand knowledge is presentation and *vice versa,* since whatever is presented to sense is known without error. The reviewer has very considerable doubts about this latter axiom. And on the other hand, there frequently occur cases where we "know what something is" perfectly well, yet where we have no memory image at the moment, and the thing is too simple to be described in any terms but itself, as for instance, the color red, or the taste of pineapple. We know that we could recognize these if we met them, and we think about them with security. It is first-hand knowledge, it is different from the blind man's knowledge of red, but it is not presentation. This is but one illustration of the inadequacy of Mr. Russell's theory.

The Einstein theory of relativity is the subject for the only discussion meeting which is recorded here. H. W. Carr vigorously asserts that the Einstein theory is consistent only with an idealist metaphysics, and T. P. Nunn, A. N. Whitehead (in two papers), and Dorothy Wrinch all deny that Carr has given any conclusive reason for his opinion. Miss Wrinch is particularly effective, in spite of brevity.

The other papers in this volume contain some points of value, but hardly enough to justify any special mention.

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JOURNALS AND NEW BOOKS

THE HIBBERT JOURNAL. Vol. XXII, No. 1. Government by Talk: *L. P. Jacks.* Permanence or Impermanence of Marriage: *Felix Adler.* Butler as a Moralist: *C. D. Broad.* Birth-Control and Christian Ethics: *L. Hodgson.* Bernard Bosanquet's Philosophy of Religion: *C. C. J. Webb.* Human Sacrifice in Old Mexico: *L. Spence.* Moral Problems of Young Japan: *M. Kurihara.* The Larger Self: *Oliver Lodge.* Value as a Metaphysical Principle: *O. C. Quick.*

The Historical Element in Christianity: *G. Kendall.* Religion and the New Psychology: *N. B. Harman.* The Worship of Wrath: *L. Dougall.*

INTERNATIONAL JOURNAL OF ETHICS. Vol. XXXIV, No. 1. The Necessity for Proportional Representation: *P. H. Douglas.* Philosophy in the University of Cambridge: *C. D. Burns.* Legal Fictions: *R. Demos.* Personal Immortality as an Ethical Principle: *J. E. Turner.* The Effects of the Motion Picture on the Mind and Morals of the Young: *J. R. Geiger.*

STUDI FILOSOFICI E RELIGIOSI. Vol. IV, Num. 2. Studi appollinaristici.—II. I presupposti psicologici della cristologie de Apollinare de Laodicea: *G. Furlani.* La bella Elena: *T. Zielinski.* L'escatologia de Metodio d'Olimpo: *A. Biamonti.* Mahâtmâ Gandhî: *A. Bonucci.*

JOURNAL OF EXPERIMENTAL PSYCHOLOGY. Vol. VI, No. 5. A Differential Color Mixer with Stationary Disks: *P. T. Young.* Correlations of Initial and Final Capacities in Learning: *G. M. Ruch.* Critique of the Association Test as Applied to Advertising: *D. A. Laird.* A Neglected Phase of the Part-Whole Problem: *H. L. Koch.* To What Extent is Memory Measured by a Single Recall? *W. Brown.* A Simple Device for Recording Inspirations-Expirations Time: *H. K. Nixon.*

JOURNAL OF EDUCATIONAL PSYCHOLOGY. Vol. XIV, No. 6. A New Method for Determining the Significance of Differences in Intelligence and Achievement Scores: *T. L. Kelley.* The Achievement Quotient Technique: *G. M. Ruch.* Formulas for the Correlation between Ratios: *K. J. Holzinger.* The Validation of Intelligence Tests: *A. M. Jordan.* An Experimental Study of the Relative Difficulty of True-False, Multiple-Choice, and Incomplete-Sentence Types of Examination Questions: *H. H. Remmers, L. E. Marschat, A. Brown, I. Chapman.* A Uniform Objective Examination on Intelligence Testing: *D. L. Geyer.*

JOURNAL OF ABNORMAL PSYCHOLOGY AND SOCIAL PSYCHOLOGY. Volume XVIII, No. 2. Behavior under Hypnoanalysis, and the Mechanism of the Neurosis: *W. S. Taylor.* Problem Children in the Early School Grades: *C. E. Dealey.* Casting out a "Stuttering Devil": *H. A. Aikins.*

Gentile, Panfilo: Sommario d'una Filosofia della Religione. (Biblioteca di Cultura Moderna.) Bari: Gius, Laterza & Figli. 1923. 234 pp.

Müller-Freienfels, Richard: Persönlichkeit und Weltanschauung. Die Psychologischen Grundtypen in Religion, Kunst und Philosophie. Leipzig and Berlin: B. G. Teubner. 1923. xii + 284 pp. $1.35.

Vialleton, L.: Morphologie générale. Membres et Ceintures des

Vertébrés Tétrapodes. Critique morphologique du transformisme. Paris: Gaston Doin. 1924. 710 pp. 60 fr.

Riley, Woobridge: American Thought. From Puritanism to Pragmatism and Beyond. (2d edition.) New York: Henry Holt & Co. 1923. x + 438 pp.

NOTES AND NEWS

The Annual Meeting of the American Psychological Association will be held in Bascom Hall, University of Wisconsin, Madison, Wisconsin, from Thursday to Saturday, December 27, 28, and 29, 1923.

Papers of general and theoretical import will be placed in the sessions of Thursday, December 27. The business meeting will be held on Thursday evening. The session of Friday will include a Symposium. The annual dinner of the Association, followed by the Presidential address and smoker, will be on Friday evening. Saturday will be devoted to sessions of the Section of Clinical Psychology. Apparatus may be exhibited in the Psychological Laboratory, Bascom Hall.

In order to promote discussion and to decrease the conflict which arises from the holding of too many simultaneous sessions, the Program Committee announces that it will limit the number of papers upon the program. The primary bases for selection among the abstracts presented will be (1) scientific merit, (2) appropriateness of the subject-matter to the program, and (3) probability of promoting discussion. Abstracts, not exceeding 400 words and written in triplicate, must be in the hands of the Secretary, John E. Anderson, by November 8 (address, Drawer 13, Yale Station, New Haven, Conn.).

In accordance with a suggestion of the Council, the Program Committee has evolved a plan for the appearance of graduate students who are not members of the Association on the program. The papers submitted will be placed in a special half-day session running parallel with another session of the meetings. The papers will be limited to 10 minutes each and should deal with the results of investigations rather than with theoretical topics. No abstracts will be printed for these papers. The Program Committee requests recommendations from the laboratories for papers to be placed on this session of the program. The title of the paper together with the name of the student should be submitted along with a recommendation on or before November 8. Selection of the papers will be based upon the recommendations and the appropriateness of the subject.